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10/798,091	03/11/2004	Richard Alan Dayan	RPS9 2003 0208 US1	6065

56102 7590 06/04/2007	EXAMINER	
IBM (RPS-BLF)	PATEL, HETUL B	
c/o BIGGERS & OHANIAN, LLP		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>03</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 April 2007*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   This Office Action is in response to the communication filed on April 17, 2007.
None of the claims are cancelled, amended or newly added. Therefore, claims 1-20 are
currently pending in this application.

2.   Applicant's arguments filed on April 17, 2007 have been fully considered and are
persuasive. Therefore, the rejection has been withdrawn. However, upon further
consideration, a new ground(s) of rejection is made in view of Zwiegincew et al. (USPN:
6,633,968).

Claim Objections

3.   Claims 13 and 20 are objected to because of the following informalities: It
appears that the phrase "of updating" in line 2 of claims 13 and 20 should be deleted.
Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that
form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed
publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4.   Claims 1, 3, 6, 8, 10, 13-15, 17 and 20 are rejected under 35 U.S.C. 102(a) as
being anticipated by Zwiegincew.

As per claim 1, Zwiegincew teaches a method of loading data from disk in a data

processing system, comprising:

- comparing a current sequence of disk requests to data indicative of a

   previous sequence of disk requests;

- responsive to detecting a match between the current sequence and the

   previous sequence, storing a copy of data blocks accessed during the current

   sequence in a contiguous portion of the disk (i.e. the claimed steps of

   comparing and detecting a match are inherent in the method taught by

   Zwiegincew because Zwiegincew discloses that the order in which the pages

   are accessed (i.e. the sequence of the disk requests) is determined based on

   the assumption that the disk access patterns are similar from run to run (i.e.

   at least one match in the sequence of disk requests is found and it is

   assumed that the same sequence will be called again in the next/future run);

   and

- responsive to a subsequent request for data in the disk sequence, mapping

   the request to the sequential portion of the disk and servicing the request

   from data in the sequential portion (e.g. see Col. 2, lines 11-24).

As per claim 3, Zwiegincew teaches the claimed invention as described above

and furthermore, Zwiegincew teaches that storing a copy of data blocks accessed

during the I/O sequence comprises storing the data blocks sequentially in the order that

the data blocks were accessed chronologically (e.g. see Col. 2, lines 15-17).

As per claim 6, Zwiegincew teaches the claimed invention as described above. The further limitation of, the power-on event before the sequence of disk requests, is inherently present in the system taught by Zwiegincew because the system has to power-on before it can execute any (sequence) of disk request.

As per claims 8 and 10, see arguments with respect to rejection of claims 1 and 3, respectively. Claims 8 and 10 are also rejected based on the same rationale as the rejection of claims 1 and 3, respectively.

As per claims 14, 17 and 15, see arguments with respect to rejection of claims 1, 3 and 6, respectively. Claims 14, 17 and 15 are also rejected based on the same rationale as the rejection of claims 1, 3 and 6, respectively.

As per claims 13 and 20, Zwiegincew teaches the claimed invention as described above and furthermore, Zwiegincew teaches about updating the data in both the original data block and the copied data block in response to a modification of data in the boot sequence (e.g. see last three lines of the abstract and step 460 of Fig. 4).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 2, 9 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zwiegincew in view of Hung (USPN: 5,247,653).

As per claim 2, Zwiegincew teaches the claimed invention as described above and furthermore, Zwiegincew teaches about recording disk address of each block accessed (i.e. the page reference including the physical disk sector for the page) (e.g. see Col. 3, lines 17-24).   However, Zwiegincew failed to teach abut recording the length of each block. Hung, however, discloses about recording the starting address of the block and the length of the block of each memory instruction so once the controller receives the read instruction, the controller can signal the disk drive to retrieve the required number of blocks of data beginning at the starting address (e.g. see Col. 1, lines 30-44). Accordingly, it would have been obvious to one of ordinary skills in the art at the time of the current invention was made to implement Hung's teaching in the method taught by Zwiegincew. In doing so, the storage system performance improves since the number of times the controller must go to disk to access the data is reduced. Therefore, the data latency is reduced.

As per claims 9 and 16, see arguments with respect to rejection of claim 2. Claims 9 and 16 are also rejected based on the same rationale as the rejection of claim 2.

6.   Claims 4-5, 12 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zwiegincew in view of Lee et al. (USPN: 2004/0260909) hereinafter, Lee.

As per claim 4, Zwiegincew teaches the claimed invention as described above. However, Zwiegincew does not teach about prefetching additional data and caching it

in the buffer. Lee, on the other hand, teaches that upon detection of a stride, the future

memory request can be predicted. The memory sequencer then prefetching the

requests to read the additional data and stores/caches them into the prefetch buffer

(e.g. see paragraph [0022] and Fig. 2). Accordingly, it would have been obvious to one

of ordinary skills in the art at the time of the current invention was made to implement

the step of prefetching and caching taught by Lee in the method taught by Zwiegincew.

In doing so, the data will be available for processor to access from the cache instead of

the disk drive. Therefore, the data latency is reduced.

As per claim 5, Zwiegincew and Lee teaches the claimed invention as described

above. The further limitation of, determining whether the requested data resides in the

buffer and, if so, retrieving the data from the buffering without accessing the hard disk,

is inherently embedded in the system taught by Lee.

As per claims 12 and 19, see arguments with respect to rejection of claims 4 and

5. Claims 12 and 19 are also rejected based on the same rationale as the rejection of

claims 4 and 5.

7.   Claims 7, 11 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Zwiegincew in view of Brady et al. (USPN: 5,758,050) hereinafter, Brady.

As per claim 7, Zwiegincew teaches the claimed invention as described above.

However, Zwiegincew failed to disclose that the contiguous portion of the disk to which

the data is copied is on a different partition of the disk than a disk partition on which the

original data is stored. Brady, however, teaches about storing/copying data on different

partition having different operating characteristics (e.g. see Col. 2, lines 28-37).

Accordingly, it would have been obvious to one of ordinary skills in the art at the time of

the current invention was made to implement the step of prefetching and caching taught

by Brady in the method taught by Zwiegincew. In doing so, it will provide flexibility in

data management.

As per claims 11 and 18, see arguments with respect to rejection of claim 7.

Claims 11 and 18 are also rejected based on the same rationale as the rejection of

claim 7.

Conclusion

8.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Hetul Patel whose telephone number is 571-272-4184.

The examiner can normally be reached on 8:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Matt Kim can be reached on 571-272-4182. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

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For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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